Naval Medical Center Portsmouth (NMCP) COVID-19 Literature Report #89: Friday, 18 March 2022

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Purpose: These reports, published every other week on Fridays, are curated collections of current research, evidence reviews, special reports, grey literature, and news regarding the COVID-19 pandemic that may be of interest to medical providers, leadership, and decision makers. Please reach out with questions, suggestions for future topics, or any other feedback. If this report made a difference or impacted patient care, please let me know!

All reports are available online at https://nmcp.libguides.com/covidreport. Access is private; you will need to use the direct link or bookmark the URL.

Disclaimer: I am not a medical professional. This document is current as of the date noted above. While I make every effort to find and summarize available data, I cannot cover everything in the literature on COVID-19. Due to the rapid evolution of the literature, I will not update past reports when new information arises; for retracted papers specific to COVID-19, see the list of retracted papers from Retraction Watch.

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The Big Picture

News in Brief

Friday, 11 March 2022 marked 2 years since the WHO declared a global pandemic due to the novel coronavirus that emerged in December 2019. A lot has happened since then. The declaration is striking to read in retrospect (WHO).

The latest grim milestone: "Death toll surpasses 6 million for pandemic now in 3rd year" (AP).

And the US is approaching 1 million deaths; as of this writing, there have been 970,009 deaths (see Statistics, documented in this report).

Meanwhile… "COVID's true death toll: much higher than official records: Modelling suggests that by the end of 2021, some 18 million people had died because of the pandemic" (Nature; see also: Lancet study).

"China locks down city of 9 million amid new spike in cases" (AP).

"What happened to Hong Kong? The city was once lauded for controlling the coronavirus's spread. But this month, it recorded one of the highest death rates in the world" (Atlantic).

Well, this doesn't bode well… "The White House says it's running out of money to cover COVID tests and vaccines" (NPR).

Preparedness

"Public health experts sketch a roadmap to get from the Covid pandemic to the 'next normal'" (STAT; see also: Covid Roadmap report).

"America is zooming through the pandemic panic-neglect cycle: All epidemics trigger the same Sisyphean cycle of panic and neglect. Even so, that cycle isn’t meant to spin this quickly" (Atlantic).

"Lawmakers push pandemic probe modeled on 9/11 Commission" (WP).

"NASEM report urges medical supply chain transparency, agility" (CIDRAP; see also: NASEM report).

Long Reads

"How did this many deaths become normal? The U.S. is nearing 1 million recorded COVID-19 deaths without the social reckoning that such a tragedy should provoke. Why?" (Atlantic)

"Pandemic life, two years later: Where do you fit in?" (WP)

Journal Articles

JAMA Netw Open: Trends in Hospitalizations for Ambulatory Care-Sensitive Conditions During the COVID-19 Pandemic (17 March 2022)

> "Question: How has the rate of potentially preventable hospitalizations (ambulatory care–sensitive conditions) changed during the COVID-19 pandemic?
>
> Findings: This cross-sectional study found statistically significant decreases in rates of potentially preventable hospitalizations during the pandemic relative to the prepandemic period but no significant change in the intensity of care provided during these admissions. These decreases are similar in magnitude to the overall decrease in non–COVID-19–related hospital admissions during the pandemic.
>
> Meaning: This study suggests that researchers should be cautious in interpreting changes in rates of potentially preventable hospitalizations during the pandemic as being solely due to the quality of ambulatory care because these rates are also likely due to other patient-level and hospital-level factors that are associated with the demand for hospital services."

SARS-CoV-2 Virus and Variants

News in Brief

"With infections spiking in Europe and a variant on the rise, experts warn the U.S. could face a Covid resurgence" (STAT).

"Health groups press for more wildlife SARS-CoV-2 tracking" (CIDRAP).

Which is probably a good idea, because: "Researcher finds 'stunning' rate of COVID among deer. Here's what it means for humans" (NPR).

Journal Articles

BMJ: Clinical severity of, and effectiveness of mRNA vaccines against, covid-19 from omicron, delta, and alpha SARS-CoV-2 variants in the United States: prospective observational study (09 March 2022)

> "Objectives: To characterize the clinical severity of covid-19 associated with the alpha, delta, and omicron SARS-CoV-2 variants among adults admitted to hospital and to compare the effectiveness of mRNA vaccines to prevent hospital admissions related to each variant.
>
> Design: Case-control study.

> Setting: 21 hospitals across the United States.
>
> Participants: 11 690 adults (≥18 years) admitted to hospital: 5728 with covid-19 (cases) and 5962 without covid-19 (controls). Patients were classified into SARS-CoV-2 variant groups based on viral whole genome sequencing, and, if sequencing did not reveal a lineage, by the predominant circulating variant at the time of hospital admission: alpha (11 March to 3 July 2021), delta (4 July to 25 December 2021), and omicron (26 December 2021 to 14 January 2022).
>
> Main outcome measures: Vaccine effectiveness calculated using a test negative design for mRNA vaccines to prevent covid-19 related hospital admissions by each variant (alpha, delta, omicron). Among patients admitted to hospital with covid-19, disease severity on the World Health Organization's clinical progression scale was compared among variants using proportional odds regression.
>
> Results: Effectiveness of the mRNA vaccines to prevent covid-19 associated hospital admissions was 85% (95% confidence interval 82% to 88%) for two vaccine doses against the alpha variant, 85% (83% to 87%) for two doses against the delta variant, 94% (92% to 95%) for three doses against the delta variant, 65% (51% to 75%) for two doses against the omicron variant; and 86% (77% to 91%) for three doses against the omicron variant. In-hospital mortality was 7.6% (81/1060) for alpha, 12.2% (461/3788) for delta, and 7.1% (40/565) for omicron. Among unvaccinated patients with covid-19 admitted to hospital, severity on the WHO clinical progression scale was higher for the delta versus alpha variant (adjusted proportional odds ratio 1.28, 95% confidence interval 1.11 to 1.46), and lower for the omicron versus delta variant (0.61, 0.49 to 0.77). Compared with unvaccinated patients, severity was lower for vaccinated patients for each variant, including alpha (adjusted proportional odds ratio 0.33, 0.23 to 0.49), delta (0.44, 0.37 to 0.51), and omicron (0.61, 0.44 to 0.85).
>
> Conclusions: mRNA vaccines were found to be highly effective in preventing covid-19 associated hospital admissions related to the alpha, delta, and omicron variants, but three vaccine doses were required to achieve protection against omicron similar to the protection that two doses provided against the delta and alpha variants. Among adults admitted to hospital with covid-19, the omicron variant was associated with less severe disease than the delta variant but still resulted in substantial morbidity and mortality. Vaccinated patients admitted to hospital with covid-19 had significantly lower disease severity than unvaccinated patients for all the variants."

Nature: SARS-CoV-2 is associated with changes in brain structure in UK Biobank (07 March 2022)

> "There is strong evidence for brain-related abnormalities in COVID-191–13. It remains unknown however whether the impact of SARS-CoV-2 infection can be detected in milder

> cases, and whether this can reveal possible mechanisms contributing to brain pathology. Here, we investigated brain changes in 785 UK Biobank participants (aged 51–81) imaged twice, including 401 cases who tested positive for infection with SARS-CoV-2 between their two scans, with 141 days on average separating their diagnosis and second scan, and 384 controls. The availability of pre-infection imaging data reduces the likelihood of pre-existing risk factors being misinterpreted as disease effects. We identified significant longitudinal effects when comparing the two groups, including: (i) greater reduction in grey matter thickness and tissue-contrast in the orbitofrontal cortex and parahippocampal gyrus, (ii) greater changes in markers of tissue damage in regions functionally-connected to the primary olfactory cortex, and (iii) greater reduction in global brain size. The infected participants also showed on average larger cognitive decline between the two timepoints. Importantly, these imaging and cognitive longitudinal effects were still seen after excluding the 15 cases who had been hospitalised. These mainly limbic brain imaging results may be the in vivo hallmarks of a degenerative spread of the disease via olfactory pathways, of neuroinflammatory events, or of the loss of sensory input due to anosmia. Whether this deleterious impact can be partially reversed, or whether these effects will persist in the long term, remains to be investigated with additional follow up."

Transmission, Exposure, and Surveillance

News in Brief

"Dismay as funding for UK’s 'world-beating' Covid trackers is axed: Scientists at home and abroad criticise decision to cancel widely admired infection-surveillance projects including React-1 and Zoe" (Guardian).

"A new strategy for staying one step ahead of the virus" (Atlantic).

Journal Articles

Clin Infect Dis: SARS-CoV-2 in exhaled aerosol particles from covid-19 cases and its association to household transmission (11 March 2022)

> "Background: Covid-19 transmission via exhaled aerosol particles has been considered an important route for the spread of infection, especially during super-spreading events involving loud talking or singing. However, no study has previously linked measurements of viral aerosol emissions to transmission rates.

> Methods: During Feb-Mar 2021, covid-19 cases that were close to symptom onset were visited with a mobile laboratory for collection of exhaled aerosol particles during breathing, talking and singing, respectively, and of nasopharyngeal and saliva samples. Aerosol samples were collected using a BioSpot-VIVAS and a NIOSH bc-251 two-stage cyclone, and all samples were analyzed by RT-qPCR for SARS-CoV-2 RNA detection. We compared transmission rates between households with aerosol-positive and aerosol-negative index cases.
>
> Results: SARS-CoV-2 RNA was detected in at least one aerosol sample from 19 of 38 (50%) included cases. The odds ratio of finding positive aerosol samples decreased with each day from symptom onset (OR 0.55, 95CI 0.30-1.0, p=0.049). The highest number of positive aerosol samples were from singing, 16 (42%), followed by talking, 11 (30%), and the least from breathing, 3 (8%). Index cases were identified for 13 households with 31 exposed contacts. Higher transmission rates were observed in households with aerosol-positive index cases, 10/16 infected (63%), compared to households with aerosol-negative index cases, 4/15 infected (27%) (Chi-square test, p=0.045).
>
> Conclusions: Covid-19 cases were more likely to exhale SARS-CoV-2-containing aerosol particles close to symptom onset and during singing or talking as compared to breathing. This study supports that individuals with SARS-CoV-2 in exhaled aerosols are more likely to transmit covid-19."

Health Promot Chronic Dis Prev Can: Development and formative evaluation of the Canadian Armed Forces Surveillance and Outbreak Management System (CAF SOMS): applications for COVID-19 and beyond (09 March 2022)

> "The COVID-19 pandemic highlighted limitations in the current public health data infrastructure, and the need for a comprehensive, real-time, centralized, user-friendly data management system suitable for both disease surveillance and outbreak management. To address these issues, the Canadian Forces Health Services Group developed the webbased Canadian Armed Forces Surveillance and Outbreak Management System (CAF SOMS). This paper details the development of the CAF SOMS, provides formative evaluation results and includes a discussion of the lessons learned and intent to use the CAF SOMS in future to enhance the CAF's disease surveillance and outbreak management capability beyond COVID-19."

Air Med J: Descriptive Analysis of Coronavirus Disease 2019 Air Medical Evacuations by Critical Care Air Transport Teams (February 2022)

> "Objective: Preserving air medical evacuation capabilities for critically ill patients with coronavirus disease 2019 (COVID-19) required innovation for en route care logistics, training, and equipment. The aim of this study was to describe characteristics and in-flight

> interventions for patients with suspected COVID-19 requiring air medical evacuation by US Air Force critical care air transport teams (CCATTs).
>
> Methods: We performed a retrospective chart review of patients with suspected COVID-19 requiring air medical evacuation by CCATT from April 2020 to February 2021. We included patients with an available CCATT medical record and transport with COVID-19 infection isolation precautions. CCATT medical records were the data source, and we performed descriptive analyses of patient characteristics and in-flight interventions.
>
> Results: We reviewed 460 records and identified 16 patients for inclusion. The Transport Isolation System (50%) and Negatively Pressurized Conex (31%) were commonly used portable biocontainment units. The median patient age was 48.5 years, and 94% were male. All patients required oxygen supplementation, with 8 (50%) receiving mechanical ventilation. In-flight interventions among intubated patients (n = 8) included vasopressors (50%), paralytics (25%), and patient-ventilator asynchrony management (63%).
>
> Conclusion: Patients with COVID-19 requiring CCATT transport were older than prior military en route care cohorts, and in-flight interventions for patient-ventilator asynchrony were commonly required during mechanical ventilation."

COVID-19 Vaccines

News in Brief

"Pfizer and BioNTech submit for U.S. emergency use authorization of an additional booster dose of their covid-19 vaccine for older adults" (Pfizer).

"Moderna seeks FDA authorization for a second booster dose of its coronavirus vaccine for all adults" (WP).

"NIH launches trial to study allergic reactions to COVID-19 mRNA vaccine" (NIH).

"The goal: Vaccinate 70% of the world against COVID. Scientists are proposing a reboot" (NPR).

Health Canada has approved a plant-based COVID-19 vaccine (CBC).

Journal Articles

MMWR: The Advisory Committee on Immunization Practices’ Recommendation for Use of Moderna COVID-19 Vaccine in Adults Aged ≥18 Years and Considerations for Extended Intervals for Administration of Primary Series Doses of mRNA COVID-19 Vaccines — United States, February 2022 (18 March 2022)

> "What is already known about this topic? On January 31, 2022, the Food and Drug Administration (FDA) granted full approval to the Moderna COVID-19 vaccine for persons aged ≥18 years.
>
> What is added by this report? On February 4, 2022, after a systematic review of the evidence, the Advisory Committee on Immunization Practices issued a standard recommendation for use of the Moderna COVID-19 vaccine in persons aged ≥18 years. CDC provided guidance that an 8-week interval between primary series doses of mRNA vaccines might be optimal for some persons.
>
> What are the implications for public health practice? Use of the FDA-approved Moderna COVID-19 vaccine is recommended for persons aged ≥18 years; benefits of the prevention of infection and associated hospitalization or death outweigh vaccine-associated risks."

JAMA: Myocarditis Following a Third BNT162b2 Vaccination Dose in Military Recruits in Israel (17 March 2022)

> "This study assessed whether a third vaccine dose was associated with the risk of myocarditis among military personnel in Israel….
>
> This study found a low risk of myocarditis after a third dose of BNT162b2 in Israeli military recruits. The incidence was lower than observed a week after a second dose of the vaccine in a similar Israeli military population (5.07 per 100 000 vaccines). However, the myocarditis incidence for 18- to 24-year-old men was higher than observed for a US male population (5.243 per 100 000 vaccines). The incidence of myocarditis following the second dose of the vaccine varies according to follow-up times in studies and the definition of myocarditis used. Therefore, comparisons should be made with caution."

NEJM: Efficacy of a Fourth Dose of Covid-19 mRNA Vaccine against Omicron (16 March 2022)

> Summary from CIDRAP: "Four-dose efficacy of mRNA vaccines against symptomatic Omicron COVID-19 infection is modest, according to a research letter yesterday in the New England Journal of Medicine that described a small study in Israel.
>
> Of 1,050 eligible Israeli healthcare workers, 154 received a fourth dose of Pfizer and 120 received a fourth dose of Moderna. The researchers selected two age-matched controls from the remaining eligible participants for each person vaccinated.
>
> The fourth dose produced a robust immune response and caused no concerning adverse events. Overall, 25.0% of the volunteers in the control group were infected with Omicron, compared with 18.3% in the Pfizer group and 20.7% in the Moderna group.

> The researchers reported vaccine efficacy of 30% for Pfizer and 11% for Moderna for any SAR-CoV-2 infection, but neither vaccine achieved statistical significance for this measure. Vaccine protection against symptomatic COVID-19 was 43% for Pfizer and 31% for Moderna. Omicron accounted for 100% of circulating SARS-CoV-2 in Israel at the time of the study.
>
> The authors note, "Our cohort was too small to allow for accurate determination of vaccine efficacy. However, within the wide confidence intervals of our estimates, vaccine efficacy against symptomatic disease was 65% at most."
>
> They conclude, "A fourth vaccination of healthy young health care workers may have only marginal benefits. Older and vulnerable populations were not assessed." Also, they did not assess a fourth dose against severe COVID-19."

Emerg Infect Dis: Duration of Infectious Virus Shedding by SARS-CoV-2 Omicron Variant–Infected Vaccinees (15 March 2022)

> "To determine virus shedding duration, we examined clinical samples collected from the upper respiratory tracts of persons infected with severe acute respiratory syndrome coronavirus 2 Omicron variant in Japan during November 29–December 18, 2021. Vaccinees with mild or asymptomatic infection shed infectious virus 6–9 days after onset or diagnosis, even after symptom resolution."

Lancet Infect Dis: Safety of mRNA vaccines administered during the initial 6 months of the US COVID-19 vaccination programme: an observational study of reports to the Vaccine Adverse Event Reporting System and v-safe (07 March 2022)

> "Background: In December, 2020, two mRNA-based COVID-19 vaccines were authorised for use in the USA. We aimed to describe US surveillance data collected through the Vaccine Adverse Event Reporting System (VAERS), a passive system, and v-safe, a new active system, during the first 6 months of the US COVID-19 vaccination programme.
>
> Methods: In this observational study, we analysed data reported to VAERS and v-safe during Dec 14, 2020, to June 14, 2021. VAERS reports were categorised as non-serious, serious, or death. Reporting rates were calculated using numbers of COVID-19 doses administered as the denominator. We analysed v-safe survey reports from days 0–7 after vaccination for reactogenicity, severity (mild, moderate, or severe), and health impacts (ie, unable to perform normal daily activities, unable to work, or received care from a medical professional).
>
> Findings: During the study period, 298 792 852 doses of mRNA vaccines were administered in the USA. VAERS processed 340 522 reports: 313 499 (92·1%) were non-serious, 22 527 (6·6%) were serious (non-death), and 4496 (1·3%) were deaths. Over half of 7 914 583 v-safe participants self-reported local and systemic reactogenicity, more frequently after dose

> two (4 068 447 [71·7%] of 5 674 420 participants for local reactogenicity and 4 018 920 [70·8%] for systemic) than after dose one (4 644 989 [68·6%] of 6 775 515 participants for local reactogenicity and 3 573 429 [52·7%] for systemic). Injection-site pain (4 488 402 [66·2%] of 6 775 515 participants after dose one and 3 890 848 [68·6%] of 5 674 420 participants after dose two), fatigue (2 295 205 [33·9%] participants after dose one and 3 158 299 participants [55·7%] after dose two), and headache (1 831 471 [27·0%] participants after dose one and 2 623 721 [46·2%] participants after dose two) were commonly reported during days 0–7 following vaccination. Reactogenicity was reported most frequently the day after vaccination; most reactions were mild. More reports of being unable to work, do normal activities, or of seeking medical care occurred after dose two (1 821 421 [32·1%]) than after dose one (808 963 [11·9%]); less than 1% of participants reported seeking medical care after vaccination (56 647 [0·8%] after dose one and 53 077 [0·9%] after dose two).
>
> Interpretation: Safety data from more than 298 million doses of mRNA COVID-19 vaccine administered in the first 6 months of the US vaccination programme show that most reported adverse events were mild and short in duration."

Breakthrough Infections, Reinfections, and Coinfections

Journal Articles

Clin Infect Dis: SARS-CoV-2 Delta vaccine breakthrough transmissibility in Alachua County, Florida (10 March 2022)

> "Background: SARS-CoV-2 Delta variant has caused a dramatic resurgence in infections in the United Sates, raising questions regarding potential transmissibility among vaccinated individuals.
>
> Methods: Between October 2020 and July 2021, we sequenced 4,439 SARS-CoV-2 full genomes, 23% of all known infections in Alachua County, Florida, including 109 vaccine breakthrough cases. Univariate and multivariate regression analyses were conducted to evaluate associations between viral RNA burden and patient characteristics. Contact tracing and phylogenetic analysis were used to investigate direct transmissions involving vaccinated individuals.
>
> Results: The majority of breakthrough sequences with lineage assignment were classified as Delta variants (74.6%) and occurred, on average, about three months (104 ± 57.5 days) after full vaccination, at the same time (June-July 2021) of Delta variant exponential spread within the county. Six Delta variant transmission pairs between fully vaccinated individuals

> were identified through contact tracing, three of which were confirmed by phylogenetic analysis. Delta breakthroughs exhibited broad viral RNA copy number values during acute infection (IQR 1.2 - 8.64 Log copies/ml), on average 38% lower than matched unvaccinated patients (3.29 - 10.81 Log copies/ml, $p<0.00001$). Nevertheless, 49-50% of all breakthroughs, and 56-60% of Delta-infected breakthroughs exhibited viral RNA levels above the transmissibility threshold (4 Log copies/ml) irrespective of time post vaccination.
>
> Conclusions: Delta infection transmissibility and general viral RNA quantification patterns in vaccinated individuals suggest limited levels of sterilizing immunity that need to be considered by public health policies. In particular, ongoing evaluation of vaccine boosters should specifically address whether extra vaccine doses curb breakthrough contribution to epidemic spread."

Emerg Infect Dis: Cross-Variant Neutralizing Serum Activity after SARS-CoV-2 Breakthrough Infections (08 March 2022)

> "To determine neutralizing activity against the severe acute respiratory syndrome coronavirus 2 ancestral strain and 4 variants of concern, we tested serum from 30 persons with breakthrough infection after 2-dose vaccination. Cross-variant neutralizing activity was comparable to that after 3-dose vaccination. Shorter intervals between vaccination and breakthrough infection correlated with lower neutralizing titers."

Health Sci Rep: Mucormycosis infection in patients with COVID-19: A systematic review (28 February 2022)

> "Introduction: Several reports previously described mucormycosis co-infection in patients with COVID-19. As mucormycosis and COVID-19 co-infection might adversely affect patients' outcomes, we aimed to systematically review the related evidence and the subsequent outcomes.
>
> Methods: We conducted a systematic review of relevant articles searching the keywords in the online databases of PubMed, Scopus, Embase, Cochrane, and Web of Science. All the records from the start of the pandemic until June 12th, 2021 underwent title/abstract and then full-text screening process, and the eligible studies were included. We did not include any language or time restrictions for the included studies.
>
> Results: We found 31 eligible studies reporting 144 total cases of COVID-19 and mucormycosis co-infection. The nose, cranial sinuses, and orbital cavity were the most commonly involved organs, although the cerebrum, lungs, and heart were also involved in the studies. Pre-existing diabetes mellitus (DM), as well as corticosteroid use, were the most commonly identified risk factors, but other underlying conditions and immunomodulatory drug use were also present in several cases. Aspergillus was the most commonly reported micro-organism that caused further co-infections in patients with concurrent COVID-19 and

> mucormycosis. As most of the studies were case reports, no reliable estimate of the mortality rate could be made, but overall, 33.6% of the studied cases died.
>
> Conclusion: Early diagnosis of mucormycosis co-infection in COVID-19 patients and selecting the right treatment plan could be a challenge for physicians. Patients with underlying co-morbidities, immunocompromised patients, and those receiving corticosteroids are at higher risk of developing mucormycosis co-infection and it is crucial to have an eye examination for early signs and symptoms suggesting a fungal infection in these patients."

Treatments and Management

News in Brief

"Lifesaving COVID drugs are sitting unused on pharmacy shelves, HHS data shows" (NPR).

"'Exceptional' ECMO outcomes in COVID-19 reflect early choices — when not used for last-ditch salvage, high proportion survive and recover lung function" (Medpage).

"Wide-ranging genetic study of severe COVID finds common risk factors: Genetic variants that are linked to immune signalling, mucus production and other functions increase the risk of critical COVID-19" (Nature; see also: genomic study in Nature).

"Are 'COVID toes' actually caused by the coronavirus? Study adds to evidence suggesting that SARS-CoV-2 infection doesn't cause an inflamed-toe condition called chilblains, but it doesn't close the door" (Nature; see also: PNAS paper).

Journal Articles

JAMA Netw Open: Angiotensin Receptor Blocker Based Lung Protective Strategies for Inpatients With COVID-19 (ALPS-IP) Investigators. Efficacy of Losartan in Hospitalized Patients With COVID-19-Induced Lung Injury: A Randomized Clinical Trial (16 March 2022)

> "Question: What is the effect of losartan on lung injury in hospitalized patients with COVID-19?
>
> Findings: In this randomized clinical trial in 205 patients with evidence of COVID-19–induced acute lung injury, angiotensin receptor blockade with maximal dose losartan did not reduce lung injury at 7 days, as measured by partial pressure of oxygen to fraction of inspired oxygen ratio. Secondary outcomes, including ventilator-free days and mortality, were unaffected, but patients treated with losartan had fewer vasopressor-free days.

> Meaning: This randomized clinical trial found that losartan for angiotensin receptor blockade did not reduce lung injury in patients with COVID-19 and raised concerns about risks of harm."

JAMA Netw Open: Association Between Dexamethasone Treatment After Hospital Discharge for Patients With COVID-19 Infection and Rates of Hospital Readmission and Mortality (08 March 2022)

> "Question: Is continuing use of dexamethasone, 6 mg/d, at discharge for patients with COVID-19 who received less than 10 days of dexamethasone treatment during hospitalization associated with readmission or mortality after discharge?
>
> Findings: In a cohort of 1164 patients with COVID-19 who received less than 10 days of dexamethasone, 6 mg/d, during hospitalization, the rate of readmission or mortality within 14 days of discharge was 9.1% among patients who continued dexamethasone treatment compared with 11.4% among patients who did not. The difference was not statistically significant.
>
> Meaning: The findings of this study suggest that prescribing dexamethasone at discharge for patients hospitalized with COVID-19 who received less than 10 days of dexamethasone is not associated with a reduction in readmission or mortality."

Antimicrob Resist Infect Control: Antimicrobial resistance (AMR) in COVID-19 patients: a systematic review and meta-analysis (November 2019-June 2021) (07 March 2022)

> "Background: Pneumonia from SARS-CoV-2 is difficult to distinguish from other viral and bacterial etiologies. Broad-spectrum antimicrobials are frequently prescribed to patients hospitalized with COVID-19 which potentially acts as a catalyst for the development of antimicrobial resistance (AMR).
>
> Objectives: We conducted a systematic review and meta-analysis during the first 18 months of the pandemic to quantify the prevalence and types of resistant co-infecting organisms in patients with COVID-19 and explore differences across hospital and geographic settings.
>
> Methods: We searched MEDLINE, Embase, Web of Science (BioSIS), and Scopus from November 1, 2019 to May 28, 2021 to identify relevant articles pertaining to resistant co-infections in patients with laboratory confirmed SARS-CoV-2. Patient- and study-level analyses were conducted. We calculated pooled prevalence estimates of co-infection with resistant bacterial or fungal organisms using random effects models. Stratified meta-analysis by hospital and geographic setting was also performed to elucidate any differences.
>
> Results: Of 1331 articles identified, 38 met inclusion criteria. A total of 1959 unique isolates were identified with 29% (569) resistant organisms identified. Co-infection with resistant bacterial or fungal organisms ranged from 0.2 to 100% among included studies. Pooled

> prevalence of co-infection with resistant bacterial and fungal organisms was 24% (95% CI 8-40%; n = 25 studies: I2 = 99%) and 0.3% (95% CI 0.1-0.6%; n = 8 studies: I2 = 78%), respectively. Among multi-drug resistant organisms, methicillin-resistant Staphylococcus aureus, carbapenem-resistant Acinetobacter baumannii, Klebsiella pneumoniae, Pseudomonas aeruginosa and multi-drug resistant Candida auris were most commonly reported. Stratified analyses found higher proportions of AMR outside of Europe and in ICU settings, though these results were not statistically significant. Patient-level analysis demonstrated > 50% (n = 58) mortality, whereby all but 6 patients were infected with a resistant organism.
>
> Conclusions: During the first 18 months of the pandemic, AMR prevalence was high in COVID-19 patients and varied by hospital and geography although there was substantial heterogeneity. Given the variation in patient populations within these studies, clinical settings, practice patterns, and definitions of AMR, further research is warranted to quantify AMR in COVID-19 patients to improve surveillance programs, infection prevention and control practices and antimicrobial stewardship programs globally."

Pre-Existing Conditions and Comorbidities

Journal Articles

Ann Thorac Surg: The Effect of COVID-19 on Adult Cardiac Surgery in the United States in 717 103 Patients (11 March 2022)

> "Background: COVID-19 has changed the world as we know it, and the United States continues to accumulate the largest number of COVID-related deaths worldwide. There exists a paucity of data regarding the effect of COVID-19 on adult cardiac surgery trends and outcomes on regional and national levels.
>
> Methods: The Society of Thoracic Surgeons Adult Cardiac Surgery Database was queried from January 1, 2018, to June 30, 2020. The Johns Hopkins COVID-19 database was queried from February 1, 2020, to January 1, 2021. Surgical and COVID-19 volumes, trends, and outcomes were analyzed on a national and regional level. Observed-to-expected ratios were used to analyze risk-adjustable mortality.
>
> Results: The study analyzed 717 103 adult cardiac surgery patients and more than 20 million COVID-19 patients. Nationally, there was a 52.7% reduction in adult cardiac surgery volume and a 65.5% reduction in elective cases. The Mid-Atlantic region was most affected by the first COVID-19 surge, with 69.7% reduction in overall case volume and 80.0% reduction in elective cases. In the Mid-Atlantic and New England regions, the observed-to-expected

mortality for isolated coronary bypass increased as much as 1.48 times (148% increase) pre-COVID rates. After the first COVID-19 surge, nationwide cardiac surgical case volumes did not return to baseline, indicating a COVID-19-associated deficit of cardiac surgery patients.

Conclusions: This large analysis of COVID-19-related impact on adult cardiac surgery volume, trends, and outcomes found that during the pandemic, cardiac surgery volume suffered dramatically, particularly in the Mid-Atlantic and New England regions during the first COVID-19 surge, with a concurrent increase in observed-to-expected 30-day mortality."

Circulation: Critical Illness Among Patients Hospitalized With Acute COVID-19 With and Without Congenital Heart Defects (07 March 2022)

Summary taken from CIDRAP: "Hospitalized COVID-19 patients with congenital heart defects (CHDs) were more likely to be admitted to an intensive care unit (ICU), require invasive mechanical ventilation (IMV), and die than those without CHDs in the first 11 months of the pandemic, suggests a study published today in Circulation.

Congenital heart defects, the most common birth defect in the world, occurs when the heart or blood vessels near the heart don't develop normally in utero.

US Centers for Disease Control and Prevention (CDC) researchers mined claims data on hospitalized COVID-19 patients ages 1 to 64 years from March 2020 through January 2021 from the Premier Healthcare Database Special COVID-19 Release. Vaccination status data weren't included in the study.

Patients with and without CHD received care in the same hospitals, and the study accounted for differences in age, sex, race, health insurance type, and other high-risk conditions such as heart failure, pulmonary hypertension, Down syndrome, diabetes, and obesity.

Among 235,638 eligible patients, 421 (0.2%) had CHD, and 68.4% had one or more chronic illnesses, compared with 58.8% of the 235,217 patients without CHD.

More than half (53.9%) of CHD patients were admitted to an ICU (vs 42.6% of those without CHD), 24.0% needed IMV (vs 14.5%), and 11.2% died in the hospital (vs 6.9%). Those at greatest risk for severe illness were those who had CHD and an underlying illness, were 50 years and older, and were men.

Among CHD patients, 73% were older than 30 years, 61% were male, 55% were White, 19% were Hispanic, and 16% were Black."

↑ Back up to Table of Contents

Nature: Whole genome sequencing reveals host factors underlying critical Covid-19 (07 March 2022)

> "Critical Covid-19 is caused by immune-mediated inflammatory lung injury. Host genetic variation influences the development of illness requiring critical care1 or hospitalisation2-4 following SARS-CoV-2 infection. The GenOMICC (Genetics of Mortality in Critical Care) study enables the comparison of genomes from critically-ill cases with population controls in order to find underlying disease mechanisms. Here, we use whole genome sequencing in 7,491 critically-ill cases compared with 48,400 controls to discover and replicate 23 independent variants that significantly predispose to critical Covid-19. We identify 16 new independent associations, including variants within genes involved in interferon signalling (IL10RB, PLSCR1), leucocyte differentiation (BCL11A), and blood type antigen secretor status (FUT2). Using transcriptome-wide association and colocalisation to infer the effect of gene expression on disease severity, we find evidence implicating multiple genes, including reduced expression of a membrane flippase (ATP11A), and increased mucin expression (MUC1), in critical disease. Mendelian randomisation provides evidence in support of causal roles for myeloid cell adhesion molecules (SELE, ICAM5, CD209) and coagulation factor F8, all of which are potentially druggable targets. Our results are broadly consistent with a multi-component model of Covid-19 pathophysiology, in which at least two distinct mechanisms can predispose to life-threatening disease: failure to control viral replication, or an enhanced tendency towards pulmonary inflammation and intravascular coagulation. We show that comparison between critically-ill cases and population controls is highly efficient for detection of therapeutically-relevant mechanisms of disease."

Long COVID and Other Complications

News in Brief

"Almost a third of people report lingering symptom 6-12 months after COVID-19 - study" (Reuters; see also: medRxiv preprint).

"Long covid can make it hard to do your job. Here are options to stop that becoming a problem with your boss" (WP).

"People with 'medium COVID' are caught in a gray area of recovery with little support" (NPR).

Long Reads

"Covid long-haulers face grueling fights for disability benefits— Patients and doctors say safety net is unprepared for novel claims stemming from the pandemic" (WP).

Journal Articles

Front Aging Neurosci: COVCOG 1: Factors Predicting Physical, Neurological and Cognitive Symptoms in Long COVID in a Community Sample. A First Publication From the COVID and Cognition Study (17 March 2022)

> "Since its first emergence in December 2019, coronavirus disease 2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has evolved into a global pandemic. Whilst often considered a respiratory disease, a large proportion of COVID-19 patients report neurological symptoms, and there is accumulating evidence for neural damage in some individuals, with recent studies suggesting loss of gray matter in multiple regions, particularly in the left hemisphere. There are a number of mechanisms by which COVID-19 infection may lead to neurological symptoms and structural and functional changes in the brain, and it is reasonable to expect that many of these may translate into cognitive problems. Indeed, cognitive problems are one of the most commonly reported symptoms in those experiencing “Long COVID”—the chronic illness following COVID-19 infection that affects between 10 and 25% of patients. The COVID and Cognition Study is a part cross-sectional, part longitudinal, study documenting and aiming to understand the cognitive problems in Long COVID. In this first paper from the study, we document the characteristics of our sample of 181 individuals who had experienced COVID-19 infection, and 185 who had not. We explore which factors may be predictive of ongoing symptoms and their severity, as well as conducting an in-depth analysis of symptom profiles. Finally, we explore which factors predict the presence and severity of cognitive symptoms, both throughout the ongoing illness and at the time of testing. The main finding from this first analysis is that that severity of initial illness is a significant predictor of the presence and severity of ongoing symptoms, and that some symptoms during the initial illness—particularly limb weakness—may be more common in those that have more severe ongoing symptoms. Symptom profiles can be well described in terms of 5 or 6 factors, reflecting the variety of this highly heterogenous condition experienced by the individual. Specifically, we found that neurological/psychiatric and fatigue/mixed symptoms during the initial illness, and that neurological, gastrointestinal, and cardiopulmonary/fatigue symptoms during the ongoing illness, predicted experience of cognitive symptoms."

Front Aging Neurosci: COVCOG 2: Cognitive and Memory Deficits in Long COVID: A Second Publication From the COVID and Cognition Study (17 March 2022)

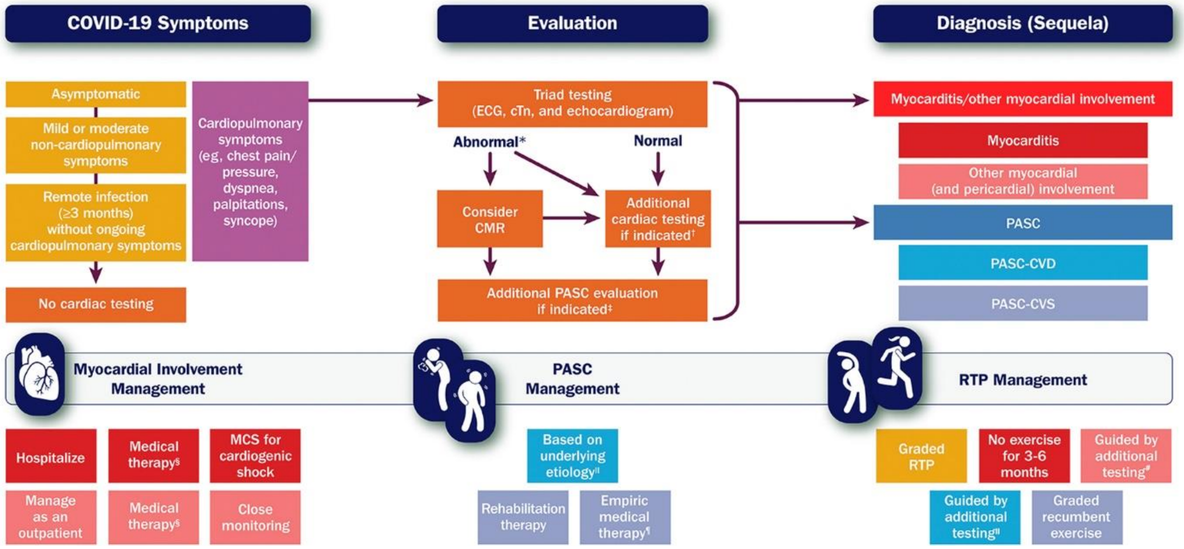
> "COVID-19, caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has been often characterized as a respiratory disease. However, it is increasingly being understood as an infection that impacts multiple systems, and many patients report neurological symptoms. Indeed, there is accumulating evidence for neural damage in some individuals, with recent studies suggesting loss of gray matter in multiple regions, particularly in the left hemisphere. There are several mechanisms by which the COVID-19

infection may lead to neurological symptoms and structural and functional changes in the brain, and cognitive problems are one of the most commonly reported symptoms in those experiencing Long COVID – the chronic illness following the COVID-19 infection that affects between 10 and 25% of patients. However, there is yet little research testing cognition in Long COVID. The COVID and Cognition Study is a cross-sectional/longitudinal study aiming to understand cognitive problems in Long COVID. The first paper from the study explored the characteristics of our sample of 181 individuals who had experienced the COVID-19 infection, and 185 who had not, and the factors that predicted ongoing symptoms and self-reported cognitive deficits. In this second paper from the study, we assess this sample on tests of memory, language, and executive function. We hypothesize that performance on "objective" cognitive tests will reflect self-reported cognitive symptoms. We further hypothesize that some symptom profiles may be more predictive of cognitive performance than others, perhaps giving some information about the mechanism. We found a consistent pattern of memory deficits in those that had experienced the COVID-19 infection, with deficits increasing with the severity of self-reported ongoing symptoms. Fatigue/Mixed symptoms during the initial illness and ongoing neurological symptoms were predictive of cognitive performance."

JACC: 2022 ACC Expert Consensus Decision Pathway on Cardiovascular Sequelae of COVID-19 in Adults: Myocarditis and Other Myocardial Involvement, Post-Acute Sequelae of SARS-CoV-2 Infection, and Return to Play: A Report of the American College of Cardiology Solution Set Oversight Committee (16 March 2022)

For a good summary, see: "ACC Issues Playbook for Long COVID With Cardiac Involvement — Preliminary guidance also covers management of myocarditis and sports participation" from Medpage Today

Pathway summary graphic from full text:


COVID-19 Symptoms
Evaluation
Diagnosis (Sequela)
Asymptomatic
Mild or moderate non-cardiopulmonary symptoms
Remote infection (≥3 months) without ongoing cardiopulmonary symptoms
No cardiac testing
Cardiopulmonary symptoms (eg, chest pain/ pressure, dyspnea, palpitations, syncope)
Triad testing (ECG, cTn, and echocardiogram)
Abnormal*
Normal
Consider CMR
Additional cardiac testing if indicated†
Additional PASC evaluation if indicated‡
Myocarditis/other myocardial involvement
Myocarditis
Other myocardial (and pericardial) involvement
PASC
PASC-CVD
PASC-CVS
Myocardial Involvement Management
PASC Management
RTP Management
Hospitalize
Medical therapy§
MCS for cardiogenic shock
Manage as an outpatient
Medical therapy§
Close monitoring
Based on underlying etiology‖
Rehabilitation therapy
Empiric medical therapy¶
Graded RTP
No exercise for 3-6 months
Guided by additional testing#
Guided by additional testing‖
Graded recumbent exercise

Radiology: Quantitative Chest CT Assessment of Small Airways Disease in Post-Acute SARS-CoV-2 Infection (15 March 2022)

> "Background: The long-term effects of SARS-CoV-2 infection on pulmonary structure and function remain incompletely characterized.
>
> Purpose: To test whether SARS-CoV-2 infection leads to small airways disease in patients with persistent symptoms.
>
> Materials and Methods: In this single center study at a university teaching hospital, adults with confirmed COVID-19 who remained symptomatic >30 days following diagnosis were prospectively enrolled between June and December 2020 and compared to healthy participants (controls) prospectively enrolled between March and August 2018. Participants with post-acute sequelae of COVID-19 (PASC) were classified as ambulatory, hospitalized, or requiring the intensive care unit (ICU) based on the highest level of care received during acute infection. Symptoms, pulmonary function tests, and chest CT images were collected, and quantitative CT analysis was performed using supervised machine-learning to measure regional ground glass opacities (GGO) and inspiratory and expiratory image-matching to measure regional air trapping. Univariable analyses and multivariable linear regression were used to compare groups.
>
> Results: 100 participants with PASC (median age, 48 years; 66 women) were evaluated and compared with 106 matched healthy controls. Sixty-seven percent (67/100) of the participants with PASC were classified as ambulatory, 17% (17/100) wer e hospitalized and 16% (16/100) required care in the ICU. Among the hospitalized and ICU groups, the mean percent of total lung classified as GGO was 13.2% and 28.7%, respectively, and was higher than in the ambulatory group (3.7%, p<.001 for both comparisons). The mean percentage of total lung affected by air trapping was 25.4%, 34.6%, and 27.3% in the ambulatory, hospitalized, and ICU groups and 7.2% in healthy controls (p<.001). Air trapping correlated with the residual volume to total lung capacity rati o (RV/TLC; r=0.6, p<.001).
>
> Conclusions: In survivors of COVID-19, small airways disease occurred independently of initial infection severity. The long-term consequences are unknown."

JAMA Neurol: One-Year Trajectory of Cognitive Changes in Older Survivors of COVID-19 in Wuhan, China: A Longitudinal Cohort Study (08 March 2022)

> "Question: What is the dynamic trajectory of cognitive changes in the elderly population surviving COVID-19?
>
> Findings: In this cohort study of 1438 COVID-19 survivors 60 years and older who were discharged from COVID-19–designated hospitals in Wuhan, China, the incidence of cognitive impairment was higher in COVID-19 survivors, especially those with severe cases, compared with uninfected participants during a 1-year follow-up period.

> Meaning: The findings suggest that long-term cognitive decline is common after SARS-CoV-2 infection, indicating the necessity of evaluating the impact of the COVID-19 pandemic on the future dementia burden worldwide."

BJGP Open: Enhancing the management of long COVID in general practice: a scoping review (07 March 2022)

> "Background: Long COVID is a multifaceted condition, and it has impacted a considerable proportion of those with acute-COVID-19. Affected patients often have complex care needs requiring holistic and multidisciplinary care, the kind routinely provided in general practice. However, there is limited evidence regarding GP interventions.
>
> Aim: This study aimed to address this issue by conducting a scoping review of literature on GP management of Long COVID.
>
> Design & setting: Arksey and O'Malley's six-stage scoping review framework with recommendations by Levac et al. was used.
>
> Method: PubMed, Google Scholar, the Cochrane Library, SCOPUS, and Google searches were conducted to identify relevant peer-reviewed/grey literature, and study selection process was conducted according to the PRISMA Extension for Scoping Reviews guidelines. Braun and Clarke's 'Thematic Analysis' approach was used to interpret data.
>
> Results: Nineteen of 972 identified papers were selected for review. These included peer-reviewed articles and grey literature spanning a wide range of countries. Six themes were identified regarding GP management of Long COVID, these being: (i) GP uncertainty, (ii) Listening and empathy, (iii) Assessment and monitoring of symptoms, (iv) Coordinating access to appropriate services, (v) Facilitating provision of continual and integrated multi-disciplinary care and (vi) Need to facilitate psychological support.
>
> Conclusion: The findings show that GPs can and have played a key role in the management of Long COVID, and that patient care can be improved through better understanding of patient experiences, standardised approaches for symptom identification/treatment, and facilitation of access to multidisciplinary specialist services when needed. Future research evaluating focused GP interventions is needed."

Open Forum Infect Dis: New Onset Dementia Among Survivors of Pneumonia Associated with Severe Acute Respiratory Syndrome Coronavirus 2 Infection (07 March 2022)

> "Background: Case series without control groups suggest that severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection may result in cognitive deficits and dementia in the post-infectious period.
>
> Methods: Adult pneumonia patients with SARS-CoV-2 infection (index hospitalization) and age, gender, and race/ethnicity matched contemporary control pneumonia patients without

> SARS-CoV-2 infection were identified from 110 healthcare facilities in United States. The risk of new diagnosis of dementia following >30 days after the index hospitalization event without any previous history of dementia was identified using logistic regression analysis to adjust for potential confounders.
>
> Results: Among 10,403 patients with pneumonia associated with SARS-CoV-2 infection, 312 patients (3%; 95% confidence interval, 2.7%-3.4%) developed new onset dementia over a median period of 182 days (interquartile range Q1=113 days, Q3=277 days). After adjustment for age, gender, race/ethnicity, hypertension, diabetes mellitus, hyperlipidemia, nicotine dependence/tobacco use, alcohol use/abuse, atrial fibrillation, previous stroke, and congestive heart failure, the risk of new onset dementia was significantly higher with pneumonia associated with SARS-CoV-2 infection compared with pneumonia unrelated to SARS-CoV-2 infection (odds ratio, 1.3; 95% confidence interval, 1.1-1.5). The association remained significant after further adjustment for occurrence of stroke, septic shock, and intubation/mechanical ventilation during index hospitalization (odds ratio, 1.3; 95% confidence interval, 1.1-1.5).
>
> Conclusions: Approximately 3% of patients with pneumonia associated with SARS-CoV-2 infection developed new onset dementia which was significantly higher than the rate seen with other pneumonias."

Clin Infect Dis: Long-term health-related quality of life in non-hospitalised COVID-19 cases with confirmed SARS-CoV-2 infection in England: Longitudinal analysis and cross-sectional comparison with controls (05 March 2022)

> "Background: We aimed to quantify the unknown losses in health-related quality of life of COVID-19 cases using quality-adjusted life days (QALDs) and the recommended EQ-5D instrument in England.
>
> Methods: Prospective cohort study of non-hospitalised, PCR-confirmed SARSCoV2(+) cases aged 12-85 years and followed up for six months from 01 December 2020, with cross-sectional comparison to SARSCoV2(–) controls. Main outcomes were QALD losses; physical symptoms; and COVID-19-related private expenditures. We analysed results using multivariable regressions with post-hoc weighting by age and sex, and conditional logistic regressions for the association of each symptom and EQ-5D limitation on cases and controls.
>
> Results: Of 548 cases (mean age 41.1 years; 61.5% female), 16.8% reported physical symptoms at month 6 (most frequently extreme tiredness, headache, loss of taste and/or smell, and shortness of breath). Cases reported more limitations with doing usual activities than controls. Almost half of cases spent a mean of £18.1 on non-prescription drugs (median: £10.0), and 52.7% missed work or school for a mean of 12 days (median: 10). On average, all cases lost 13.7 (95%-CI: 9.7, 17.7) QALDs, while those reporting symptoms at

> month 6 lost 32.9 (24.5, 37.6) QALDs. Losses also increased with older age. Cumulatively, the health loss from morbidity contributes at least 18% of the total COVID-19-related disease burden in England.
>
> Conclusions: One in 6 cases report ongoing symptoms at 6 months, and 10% report prolonged loss of function compared to pre-COVID-19 baselines. A marked health burden was observed among older COVID-19 cases and those with persistent physical symptoms."

Pregnancy and Postpartum Period

Journal Articles

BMJ: SARS-CoV-2 positivity in offspring and timing of mother-to-child transmission: living systematic review and meta-analysis (16 March 2022)

> "Objectives: To assess the rates of SARS-CoV-2 positivity in babies born to mothers with SARS-CoV-2 infection, the timing of mother-to-child transmission and perinatal outcomes, and factors associated with SARS-CoV-2 status in offspring.
>
> Design: Living systematic review and meta-analysis.
>
> Data sources: Major databases between 1 December 2019 and 3 August 2021.
>
> Study selection: Cohort studies of pregnant and recently pregnant women (including after abortion or miscarriage) who sought hospital care for any reason and had a diagnosis of SARS-CoV-2 infection, and also provided data on offspring SARS-CoV-2 status and risk factors for positivity. Case series and case reports were also included to assess the timing and likelihood of mother-to-child transmission in SARS-CoV-2 positive babies.
>
> Data extraction: Two reviewers independently extracted data and assessed study quality. A random effects model was used to synthesise data for rates, with associations reported using odds ratios and 95% confidence intervals. Narrative syntheses were performed when meta-analysis was inappropriate. The World Health Organization classification was used to categorise the timing of mother-to-child transmission (in utero, intrapartum, early postnatal).
>
> Results: 472 studies (206 cohort studies, 266 case series and case reports; 28 952 mothers, 18 237 babies) were included. Overall, 1.8% (95% confidence interval 1.2% to 2.5%; 140 studies) of the 14 271 babies born to mothers with SARS-CoV-2 infection tested positive for the virus with reverse transcriptase polymerase chain reaction (RT-PCR). Of the 592 SARS-CoV-2 positive babies with data on the timing of exposure and type and timing of tests, 14 had confirmed mother-to-child transmission: seven in utero (448 assessed), two

> intrapartum (18 assessed), and five during the early postnatal period (70 assessed). Of the 800 SARS-CoV-2 positive babies with outcome data, 20 were stillbirths, 23 were neonatal deaths, and eight were early pregnancy losses; 749 babies were alive at the end of follow-up. Severe maternal covid-19 (odds ratio 2.4, 95% confidence interval 1.3 to 4.4), maternal death (14.1, 4.1 to 48.0), maternal admission to an intensive care unit (3.5, 1.7 to 6.9), and maternal postnatal infection (5.0, 1.2 to 20.1) were associated with SARS-CoV-2 positivity in offspring. Positivity rates using RT-PCR varied between regions, ranging from 0.1% (95% confidence interval 0.0% to 0.3%) in studies from North America to 5.7% (3.2% to 8.7%) in studies from Latin America and the Caribbean.
>
> Conclusion: SARS-CoV-2 positivity rates were found to be low in babies born to mothers with SARS-CoV-2 infection. Evidence suggests confirmed vertical transmission of SARS-CoV-2, although this is likely to be rare. Severity of maternal covid-19 appears to be associated with SARS-CoV-2 positivity in offspring."

BMC Res Notes: Postpartum depression and associated risk factors during the COVID-19 pandemic (14 March 2022)

> "Objective: To describe postpartum depression and associated risk factors among postpartum patients in the United States (US) between February and July 2020. This study used a cross-sectional descriptive design to collect survey data from a convenience sample of postpartum patients who lived in the US and delivered a live infant after the US declared COVID-19 a public health emergency.
>
> Results: Our sample included 670 postpartum patients who completed an online survey inclusive of the Edinburgh Postnatal Depression Scale (EPDS) and selected demographic items (e.g. NICU admission status, infant gestational age, infant feeding method). In our sample, 1 in 3 participants screened positive for postpartum depression and 1 in 5 had major depressive symptoms. Participants who fed their infants formula had 92% greater odds of screening positive for postpartum depression and were 73% more likely to screen positive for major depressive symptoms compared to those who breastfed or bottle-fed with their own human milk. Participants with infants admitted to a NICU had 74% greater odds of screening positive. Each 1 week increase in weeks postpartum increased the odds of screening positive by 4%. Participants who worried about themselves and their infants contracting COVID-19 had 71% greater odds of screening positive."

JAMA Pediatr: Comparing Human Milk Antibody Response After 4 Different Vaccines for COVID-19 (14 March 2022)

> "We demonstrated that SARS-CoV-2–specific IgA in human milk was present more frequently after vaccination with an mRNA-based vaccine compared with a vector-based vaccine. Additionally, IgG was present in all participants after receiving 2 vaccine doses,

> independent of vaccine type. However, IgG was detectable earlier after vaccination with either of the mRNA vaccines, which can be explained by timing of the second dose."

J Matern Fetal Neonatal Med: Possible vertical transmission of corona virus disease 19 (COVID-19) from infected pregnant mothers to neonates: a multicenter study (13 March 2022)

> "Introduction: Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is highly contagious with various possible routes of transmission, resulting in high mortality globally. Controversy exists regarding the vertical transmission of the SARS-CoV-2 infection to fetuses of COVID-19-infected women. The aim of this study was to investigate the possibility of the vertical transmission of SARS-CoV-2 from COVID-19-infected mothers to their neonates.
>
> Materials and methods: We prospectively collected demographical and clinical characteristics of 31 COVID-19 positive pregnant women and their neonates. All mothers and neonates were tested for SARS-CoV-2 infection using the real-time polymerase chain reaction on nasopharyngeal swabs and breast milk samples. Antenatal and placental abnormalities were ultrasonically and histopathologically examined. In cord blood samples, the immunoglobins (Ig) M and IgG were estimated qualitatively.
>
> Results: The women's mean age and gestational age were 31 years and 38 weeks, respectively, with 58% undergoing an elective cesarean section. Gestational diabetes was reported in 29% of cases, 64.5% of women were medically free and only 16.12% were symptomatic. A normal antenatal ultrasound was observed in 77.42% of cases. Nine cord blood samples were positive for IgG. Villous infarction (24%), villous agglutination, and chorangiosis (51%), accelerated villous maturation (21%) and reduced and hypercoiling were reported for 6.97% of the umbilical cords. Three newborns had possible vertical transmission of SARS-CoV-2 infection, of which, two were preterm and IUFD. The third neonate was born full-term, admitted to NICU and later discharged in good health.
>
> Conclusion: Our findings support the possibility of the direct vertical transmission of the SARS-CoV-2 infection to neonates from infected mothers. Further studies with a larger sample size are required to validate the current findings."

JAMA Psychiatry: Improving Perinatal Maternal Mental Health Starts With Addressing Structural Inequities (09 March 2022)

> "This Viewpoint discusses the effect of the COVID-19 pandemic on perinatal maternal mental health and its potential consequences on child development."

Pediatric Population

News in Brief

"One-third of all US child Covid deaths occurred during Omicron surge" (Guardian).

"Kids show mysteriously low levels of COVID antibodies — children also seem to be able to clear SARS-CoV-2 from their bodies much quicker than adults can" (Nature).

"A quarter of U.S. children who had symptomatic infections suffered from long COVID, according to a meta-analysis published as a preprint" (Medpage; see also: medRxiv preprint).

Beyond COVID

"RSV vaccine could cut antimicrobial use in infants" (CIDRAP; see also: PNAS article).

Journal Articles

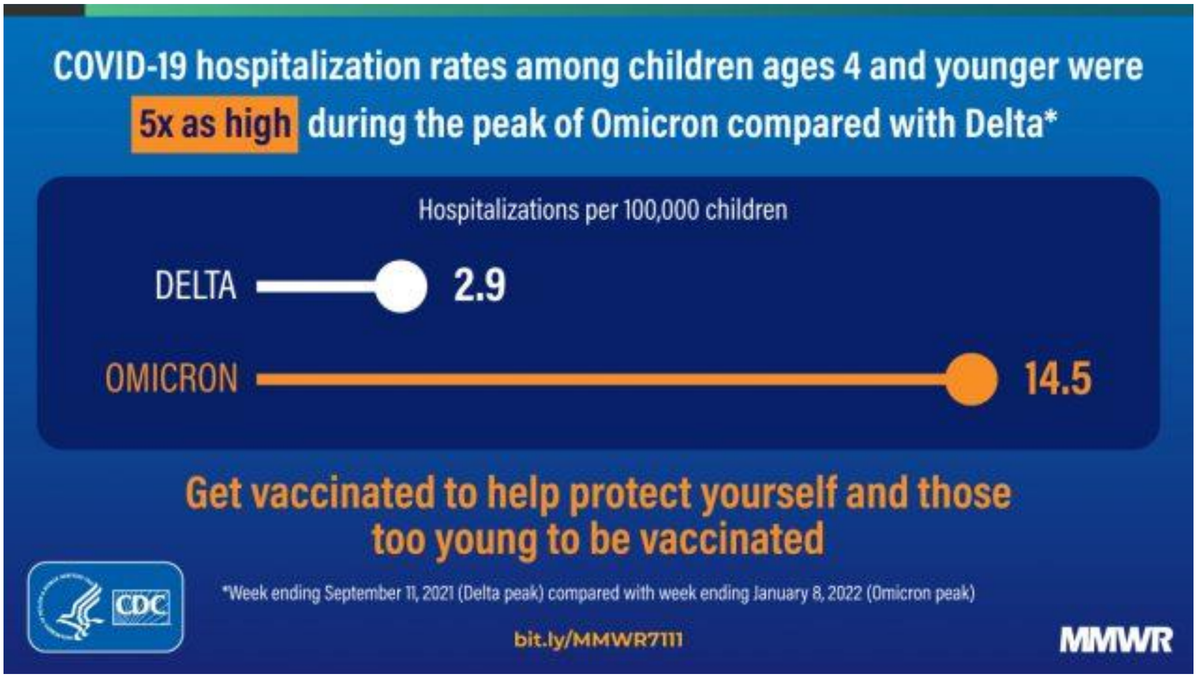
MMWR: Effectiveness of 2-Dose BNT162b2 (Pfizer BioNTech) mRNA Vaccine in Preventing SARS-CoV-2 Infection Among Children Aged 5–11 Years and Adolescents Aged 12–15 Years — PROTECT Cohort, July 2021–February 2022 (18 March 2022)

> "What is already known about this topic? Receipt of 2 doses of Pfizer-BioNTech COVID-19 vaccine has been shown to be effective in preventing infection with the SARS-CoV-2 B.1.617.2 (Delta) variant in persons aged ≥12 years.
>
> What is added by this report? Children and adolescents aged 5–15 years were tested for SARS-CoV-2 weekly, irrespective of symptoms, during July 2021–February 2022. Approximately one half of Omicron infections in unvaccinated children and adolescents were asymptomatic. Two doses of Pfizer-BioNTech COVID-19 vaccine reduced the risk of Omicron infection by 31% among children aged 5–11 years and by 59% among persons aged 12–15 years.
>
> What are the implications for public health practice? All eligible children and adolescents should remain up to date with recommended COVID-19 vaccinations."

MMWR: Hospitalization of Infants and Children Aged 0–4 Years with Laboratory-Confirmed COVID-19 — COVID-NET, 14 States, March 2020–February 2022 (18 March 2022)

> "What is already known about this topic? COVID-19 can cause severe illness in infants and children, including those aged 0–4 years who are not yet eligible for COVID-19 vaccination.
>
> What is added by this report? During Omicron variant predominance beginning in late December 2021, U.S. infants and children aged 0–4 years were hospitalized at approximately five times the rate of the previous peak during Delta variant predominance.

> Infants aged <6 months had the highest rates of hospitalization, but indicators of severity (e.g., respiratory support) did not differ by age group.
>
> What are the implications for public health practice? Important strategies to prevent COVID-19 among infants and young children include vaccination of currently eligible populations such as pregnant women, family members, and caregivers of infants and young children."



Pediatrics: [Asthma and the Risk of SARS-CoV-2 Infection Among Children and Adolescents]() (11 March 2022)

> "OBJECTIVE: Over 6 million pediatric SARS-CoV-2 infections have occurred in the United States, but risk factors for infection remain poorly defined. We sought to evaluate the association between asthma and SARS-CoV-2 infection risk among children.
>
> METHODS: We conducted a retrospective cohort study of children 5 to 17 years of age receiving care through the Duke University Health System and who had a Durham County, NC residential address. Children were classified as having asthma using previously validated electronic health record-based definitions. SARS-CoV-2 infections were identified based on positive PCR testing of respiratory samples collected between March 1, 2020, and September 30, 2021. We matched children with asthma 1:1 to children without asthma using propensity scores and used Poisson regression to evaluate the association between asthma and SARS-CoV-2 infection risk.
>
> RESULTS: Of 46,900 children, 6,324 (13.5%) met criteria for asthma. Children with asthma were more likely to be tested for SARS-CoV-2 infection than children without asthma (33.0%

> vs. 20.9%, p<0.0001). In a propensity score-matched cohort of 12,648 children, 706 (5.6%) children tested positive for SARS-CoV-2 infection, including 350 (2.8%) children with asthma and 356 (2.8%) children without asthma [risk ratio: 0.98, 95% confidence interval: 0.85-1.13]. There was no evidence of effect modification of this association by inhaled corticosteroid prescription, history of severe exacerbation, or comorbid atopic diseases. Only one child with asthma required hospitalization for SARS-CoV-2 infection.
>
> CONCLUSIONS: After controlling for factors associated with SARS-CoV-2 testing, we found that children with asthma have a similar SARS-CoV-2 infection risk as children without asthma."

MMWR: COVID-19 Vaccine Provider Access and Vaccination Coverage Among Children Aged 5–11 Years — United States, November 2021–January 2022 (11 March 2022)

> "What is already known about this topic? Successful vaccination coverage requires access to vaccine and uptake. COVID-19 vaccination coverage in children is low.
>
> What is added by this report? At 11 weeks after launch of the pediatric COVID-19 vaccination program, 92% of children aged 5–11 years lived within 5 miles (8 km) of a pediatric vaccine provider; 44% of providers were pharmacies. COVID-19 first-dose vaccination coverage rates were low, particularly in high social vulnerability index (SVI) areas, but improved over time.
>
> What are the implications for public health practice? Broad vaccine access should be maintained while critical outreach efforts continue to improve vaccine coverage among children aged 5–11 years, especially in high SVI areas. If COVID-19 vaccine is recommended for children aged <5 years, similar efforts to strategically maximize access and coverage might be considered."

Emerg Infect Dis: Multisystem Inflammatory Syndrome in Children after SARS-CoV-2 Vaccination (11 March 2022)

> "Multisystem inflammatory syndrome in children (MIS-C) is a hyperinflammatory state that occurs after severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection. We present 2 cases of MIS-C after SARS-CoV-2 vaccination; 1 patient had evidence of recent SARS-CoV-2 infection. Our findings suggest that vaccination modulates the pathogenesis of MIS-C."

Clin Infect Dis: Predictive value of isolated symptoms for diagnosis of SARS-CoV-2 infection in children tested during peak circulation of the delta variant (10 March 2022)

> "Background: COVID-19 testing policies for symptomatic children attending U.S. schools or daycare vary, and whether isolated symptoms should prompt testing is unclear. We evaluated children presenting for SARS-CoV-2 testing to determine if the likelihood of

> having a positive SARS-CoV-2 test differed between participants with one versus ≥2 symptoms, and to examine the predictive capability of isolated symptoms.
>
> Methods: Participants ≤ 18 years presenting for clinical SARS-CoV-2 molecular testing in six sites in urban/suburban/rural Georgia (July-October, 2021; delta variant predominant) were queried about individual symptoms. Participants were classified into three groups: asymptomatic, one symptom only, or ≥2 symptoms. SARS-CoV-2 test results and clinical characteristics of the three groups were compared. Sensitivity, specificity, and positive/negative predictive values (PPV/NPV) for isolated symptoms were calculated by fitting a saturated Poisson model.
>
> Results: Of 602 participants, 21.8% tested positive and 48.7% had a known or suspected close contact. Children reporting one symptom (n=82; OR=6.00, 95% CI: 2.70-13.33) and children reporting ≥2 symptoms (n=365; OR=5.25: 2.66-10.38) were significantly more likely to have a positive COVID-19 test than asymptomatic children (n=155), but they were not significantly different from each other (OR=0.88: 0.52-1.49). Sensitivity/PPV were highest for isolated fever (33%/57%), cough (25%/32%), and sore throat (21%/45%); headache had low sensitivity (8%) but higher PPV (33%). Sensitivity/PPV of isolated congestion/rhinorrhea were 8%/9%.
>
> Conclusions: With high delta variant prevalence, children with isolated symptoms were as likely as those with multiple symptoms to test positive for COVID-19. Isolated fever, cough, sore throat, or headache, but not congestion/rhinorrhea, offered highest predictive value."

Pediatrics: COVID-19-Associated Croup in Children (08 March 2022)

> "As SARS-CoV-2 has evolved, so has its effects on the pediatric population. While early variants typically resulted in lower respiratory infections, the recently identified Omicron variant may exhibit a predilection for the upper airways. The relatively smaller upper respiratory tract in children compared to adults has been thought to predispose them to more severe clinical presentations resembling laryngotracheobronchitis, or croup. Caused by viral-induced subglottic airway inflammation, croup is classically characterized by sudden onset "barking cough", inspiratory stridor, and respiratory distress. Endemic coronaviruses have been linked to croup, however only sparse case reports have described croup specifically associated with SARS-CoV-2 and it remains unclear if croup cases constitute a causative relationship or result of co-infection with another virus. To address this knowledge gap, we performed a retrospective analysis of the incidence and clinical characteristics of croup associated with SARS-CoV-2 infection at a large freestanding children's hospital."

Healthcare Workers

News in Brief

"Nurses, more powerful and visible after Covid, capitalize on new clout in Washington" (STAT).

"$100K pay gap for women physicians in Maryland — Gender disparity can't be explained by hours worked or differences in specialty choice" (Medpage).

Long Reads

"Lacking mental health support, first responders turn to peers: Covid-19 revealed a mental health crisis among health care workers. A peer support group in Colorado is trying to help" (Undark).

Journal Articles

Clin Infect Dis: Antibody-mediated Immunogenicity against SARS-CoV-2 following priming, boosting and hybrid immunity: insights from 11 months of follow-up of a healthcare worker cohort in Israel, December 2020-October 2021 (12 March 2022)

> "Background: We determined circulating anti-S SARS-CoV-2 IgG antibody titres in a vaccinated healthcare workers (HCWs) cohort from Northern Israel in the 11 months following primary vaccination according to age, ethnicity and previous infection status.
>
> Methods: All consenting HCWs were invited to have their IgG levels measured before vaccination and at 6 subsequent timepoints using a quantitative S1/S2 IgG assay. All HCWs with suspected COVID-19 were PCR tested. We described trends in circulating IgG geometric mean concentration (GMC) by age, ethnicity, timing of boosting and previous infection status and compared strata using Kruskall-Wallis tests.
>
> Results: Among 985 vaccinated HCWs, IgG titres between 1 month post 2 nd dose to pre-boosting gradually decreased in all age groups. Younger or previously infected individuals had higher initial post-vaccination IgG levels ($p<0.001$ in both cases); differences substantially decreased or disappeared at 7-9 months, before boosting. The proportion of individuals infected prior to initiating vaccination and re-infected after dose 1 was comparable to the proportion of breakthrough infection post-dose 2 in those not previously infected (4.2 vs 4.7%). Pre-infection IgG levels in the 40 participants with breakthrough infection after dose 2 were similar to levels measured at the same timepoint in vaccinated HCWs who remained uninfected ($p>0.3$). Post-dose3 IgG levels were more than 10-fold those 1month post-dose 2.
>
> Conclusions: Immunity waned in all age groups and previously infected individuals, reversed by boosting. IgG titres decrease and reinfections in individuals with hybrid immunity

> (infection+vaccination) suggests they may also require further doses. Our study also highlights the difficulty in determining protective IgG levels."

Clin Infect Dis: Incidence and prevalence of COVID-19 within a healthcare worker cohort during the first year of the SARS-CoV-2 pandemic (12 March 2022)

> "Background: Preventing SARS-CoV2 infections in healthcare workers (HCWs) is critical for healthcare delivery. We aimed to estimate and characterize the prevalence and incidence of COVID-19 in a US HCW cohort and to identify risk factors associated with infection.
>
> Methods: We conducted a longitudinal cohort study of HCWs at 3 Bay Area medical centers using serial surveys and SARS-CoV-2 viral and orthogonal serological testing, including measurement of neutralizing antibodies. We estimated baseline prevalence and cumulative incidence of COVID-19. We performed multivariable Cox proportional hazards models to estimate associations of baseline factors with incident infections and evaluated the impact of time-varying exposures on time to COVID-19 using marginal structural models.
>
> Results: 2435 HCWs contributed 768 person years of follow-up time. We identified 21/2435 individuals with prevalent infection, resulting in a baseline prevalence of 0.86% (95% CI, 0.53% to 1.32%). We identified 70/2414 (2.9%) incident infections yielding a cumulative incidence rate of 9.11 cases per 100 person years (95% CI 7.11 to 11.52). Community contact with a known COVID-19 case most strongly correlated with increased hazard for infection (HR 8.1, 95% CI, 3.8, 17.5). High-risk work-related exposures (i.e., breach in protective measures) drove an association between work exposure and infection (HR 2.5, 95% CI, 1.3-4.8). More cases were identified in HCW when community case rates were high.
>
> Conclusion: We observed modest COVID-19 incidence despite consistent exposure at work. Community contact was strongly associated with infections but contact at work was not unless accompanied by high-risk exposure."

Disparities and Health Equity

News in Brief

"Pandemic medical innovations leave behind people with disabilities" (KHN).

"Delaware is shrinking racial gaps in cancer death. Its secret? Patient navigators" (NPR).

Long Reads

"The omicron wave's unequal toll: In D.C., Maryland and Virginia, one of the most vaccinated regions in the country, 7,100 people have died of covid-19 since Christmas" (WP).

Journal Articles

Health Aff: Despite The FDA's Five-Year Plan, Black Patients Remain Inadequately Represented In Clinical Trials For Drugs (04 March 2022)

> "For decades Black patients have been underrepresented in clinical trials of new treatments. In response, in 2015 the Food and Drug Administration (FDA) launched a five-year action plan aimed at improving diversity in and transparency of pivotal clinical trials for newly approved drugs. The plan contained many action steps that were aimed at improving the racial representativeness of clinical trials and enhancing the reporting of new drug side effects and benefits across diverse populations. Yet, relying on the FDA's Drug Trials Snapshots website, we failed to find evidence that the action plan improved representation of Black trial participants. Black patients remained inadequately represented in clinical trials for drugs, with a median of one-third the enrollment that would be required, whether the trials were started before, during, or after the action plan. Fewer than 20 percent of drugs had data regarding treatment benefits or side effects reported for Black patients; neither measure improved during the action plan period."

JAMA Netw Open: Assessment of Structural Barriers and Racial Group Disparities of COVID-19 Mortality With Spatial Analysis (04 March 2022)

> "Question: How do the associations between structural factors and COVID-19 mortality help explain the disproportionate outcomes experienced by different racial and ethnic groups?
>
> Findings: In this cross-sectional study of 3142 counties in 50 US states and the District of Columbia, the associations between different measures of social determinants of health and COVID-19 mortality varied across racial and ethnic groups (Black or African American, Hispanic or Latinx, and non-Hispanic White populations) and different community types (rural, suburban, and urban areas).
>
> Meaning: Findings from this study suggest the need for future research that addresses health inequity and guides policies and programs by further exploring the different dimensions and regional patterns of social determinants of health."

Mental Health and Wellness

News in Brief

"Research on the pet-human bond has boomed in the pandemic. Here's what studies found" (CNN).

"Press 3 for a pep talk from kindergartners. A new hotline gives you options for joy" (NPR; try it out! Peptoc: 707-998-8410).

"The Covid cloud is starting to lift — but two years on, its legacy of grief lingers" (Guardian).

Long Reads

"Two years into the pandemic, the earliest mourners reach for hope" (WP).

If you are a plant person (or became one, thanks to the pandemic), this may interest you: "These tiny succulents are under siege from international crime rings. Demand for ornamental plants is ravaging South Africa's rare desert flora—and fueling a nonstop duel between poachers and police" (NatGeo).

Journal Articles

JAMA Psychiatry: Changes and Inequities in Adult Mental Health-Related Emergency Department Visits During the COVID-19 Pandemic in the US (16 March 2022)

> "Question: How have adult mental health (MH)–related emergency department (ED) visits changed during the COVID-19 pandemic?
>
> Findings: In this cross-sectional study of 107 761 319 eligible ED visits, MH-related visit count findings depended on the COVID-19 pandemic period examined, whether this was compared with other periods in the pandemic or prepandemic period, and which mental disorder was examined. There was between- and within-group variation in ED visits by race and ethnicity, which varied by pandemic period examined, and there were increases in some disorders after COVID-19 case peaks for adults aged 18 to 24 years.
>
> Meaning: Results of this study suggest that EDs may have increases in MH-related visits after COVID-19 surges, especially for young adults and some racial and ethnic minoritized subpopulations."

Lancet Public Health: Acute COVID-19 severity and mental health morbidity trajectories in patient populations of six nations: an observational study (11 March 2022)

> "Background: Long-term mental and physical health consequences of COVID-19 (long COVID) are a persistent public health concern. Little is still known about the long-term mental health of non-hospitalised patients with COVID-19 with varying illness severities. Our aim was to assess the prevalence of adverse mental health symptoms among individuals diagnosed with COVID-19 in the general population by acute infection severity up to 16 months after diagnosis.

> Methods: This observational follow-up study included seven prospectively planned cohorts across six countries (Denmark, Estonia, Iceland, Norway, Sweden, and the UK). Participants were recruited from March 27, 2020, to Aug 13, 2021. Individuals aged 18 years or older were eligible to participate. In a cross-sectional analysis, we contrasted symptom prevalence of depression, anxiety, COVID-19-related distress, and poor sleep quality (screened with validated mental health instruments) among individuals with and without a diagnosis of COVID-19 at entry, 0-16 months from diagnosis. In a cohort analysis, we further used repeated measures to estimate the change in mental health symptoms before and after COVID-19 diagnosis.
>
> Findings: The analytical cohort consisted of 247 249 individuals, 9979 (4·0%) of whom were diagnosed with COVID-19 during the study period. Mean follow-up was 5·65 months (SD 4·26). Participants diagnosed with COVID-19 presented overall with a higher prevalence of symptoms of depression (prevalence ratio [PR] 1·18 [95% CI 1·03-1·36]) and poorer sleep quality (1·13 [1·03-1·24]) but not symptoms of anxiety (0·97 [0·91-1·03]) or COVID-19-related distress (1·05 [0·93-1·20]) compared with individuals without a COVID-19 diagnosis. Although the prevalence of depression and COVID-19-related distress attenuated with time, individuals diagnosed with COVID-19 but never bedridden due to their illness were consistently at lower risk of depression (PR 0·83 [95% CI 0·75-0·91]) and anxiety (0·77 [0·63-0·94]) than those not diagnosed with COVID-19, whereas patients who were bedridden for more than 7 days were persistently at higher risk of symptoms of depression (PR 1·61 [95% CI 1·27-2·05]) and anxiety (1·43 [1·26-1·63]) than those not diagnosed throughout the study period.
>
> Interpretation: Severe acute COVID-19 illness-indicated by extended time bedridden-is associated with long-term mental morbidity among recovering individuals in the general population. These findings call for increased vigilance of adverse mental health development among patients with a severe acute disease phase of COVID-19."

Health Promot Chronic Dis Prev Can: Well-being of Canadian Armed Forces members during the COVID-19 pandemic: the influence of positive health behaviours (09 March 2022)

> "Introduction: The COVID-19 pandemic has been linked to increased depression, anxiety and other adverse mental health outcomes. Understanding the behaviours that positively influence health is important for the development of strategies to maintain andimprove well-being during the pandemic.
>
> Methods: This study focussed on Canadian Armed Forces Regular Force members (N = 13 668) who participated in the COVID-19 Defence Team Survey, administered between April and May 2020. The use of positive health behaviours and the extent to which such behaviours were associated with anxiety, depression and self-reported change in health and stress levels compared to before the pandemic were examined.

> Results: Depression and anxiety were experienced by 14% and 15% of the sample, respectively, while 36% reported that their mental health had gotten worse since the pandemic started, and close to half reported worse physical health and stress levels. The most common behaviours respondents reported engaging in to maintain or improve their health were exercising outdoors, healthy eating and connecting with loved ones. Although most behaviours were associated with better health outcomes, meditation and connecting with loved ones showed associations with worse health.
>
> Conclusion: Engaging in behaviours such as exercise and healthy eating was generally associated with better health outcomes. Unexpected relationships of meditation and connecting with loved ones are discussed in terms of their use in stressful times among those with mental health issues, past research on coping strategies and impacts of the pandemic and physical distancing on social connections. The findings may have implications for strategies to promote healthy behaviours during the remainder of the pandemic and similar crises in the future."

Other Infectious Diseases and Public Health Threats

News in Brief

"Moderna plots vaccines against 15 pathogens with future pandemic potential" (Reuters).

"Covid restrictions prevented dengue in hundreds of thousands of people in 2020" (NYT; see also: Lancet Infectious Diseases article).

"Surge of HIV, tuberculosis and COVID feared amid war in Ukraine" (Nature).

"Ticks carrying the Heartland virus have been detected in at least six states; infection with the rare virus can be severe or deadly in older adults and people with underlying conditions" (Medpage; see also: Emerg Infect Dis article).

"America's flu-shot problem is also its next covid-shot problem: The successes and failures of annual flu-shot campaigns hold lessons for the future of COVID vaccines" (Atlantic).

Journal Articles

MMWR: Interim Estimates of 2021–22 Seasonal Influenza Vaccine Effectiveness — United States, February 2022 (18 March 2022)

> "What is already known about this topic? Annual vaccination against seasonal influenza is recommended for all persons in the United States aged ≥6 months. Effectiveness of seasonal influenza vaccine varies by influenza season.
>
> What is added by this report? Based on data from 3,636 children, adolescents, and adults with acute respiratory infection during October 4, 2021–February 12, 2022, seasonal influenza vaccination did not reduce the risk for outpatient respiratory illness caused by influenza A(H3N2) viruses that have predominated so far this season.
>
> What are the implications for public health practice? CDC recommends influenza vaccination for as long as influenza viruses are circulating. Vaccination can prevent serious influenza-related complications caused by viruses that might circulate later in the season, including 2009 pandemic A(H1N1) and influenza B viruses."

Am J Infect Control: Evaluation of an aerosolized hydrogen peroxide disinfection system for the reduction of Clostridioides difficile hospital infection rates over a 10 year period (16 March 2022)

> "Background: Clostridioides difficile infections (CDI) cause significant morbidity and mortality in healthcare facilities worldwide. We examined the use of an aerosolized hydrogen peroxide (aHP) disinfection system for reduction of CDI rates.
>
> Methods: We conducted a retrospective analysis of CDI rates at an acute care facility over a 10-year period. The first 5-year period investigated the before and after implementation of an aHP system followed by another 5-year period of continued use on CDI rates.
>
> Results: The before and after period showed a reduction in CDI rates from 4.6 per 10,000 patient days down to 2.7 per 10,000 patient days after implementation ($P < .001$). The second study period for the continued aHP use exhibited a consistent decrease in CDI rates to 1.4 per 10,000 patient days at the end of the study.
>
> Conclusions: The addition of a touchless aHP whole room disinfection system as part of terminal cleaning resulted in a significant reduction in CDI rates that have been sustained year after year."

Emerg Infect Dis: Imported Monkeypox from International Traveler, Maryland, USA, 2021 (09 March 2022)

> "A case of monkeypox was diagnosed in a returning traveler from Nigeria to Maryland, USA. Prompt infection control measures led to no secondary cases in 40 exposed healthcare workers. Given the global health implications, public health systems should be aware of effective strategies to mitigate the potential spread of monkeypox."

Statistics

	Total Cases	*Total Deaths*
Global	466,137,206	6,067,113
United States	79,683,782	970,009
Virginia	1,658,568	19,430

JHU CSSE and VA DOH as of 1000 ET 18 March 2022

As of 10 March 2022, the Virginia Department of Health (VA DOH) has changed how it reports COVID-19 data. These changes directly impact the Virginia and Hampton Roads area statistics (VDH "Locality") provided in previous reports. From the press release:

> "Dashboards that are being retired or consolidated into other pages:
>
> - Case and Testing Data by Zip Code: The corresponding dataset available on the Virginia Open Data Portal will continue to be updated weekly.
> - Locality: Most of the data previously located on the locality page will now be available on the Cases Dashboard. Hospitalizations and deaths by report date have been discontinued on this page. The corresponding dataset is available on the Virginia Open Data Portal and will continue to be updated Monday through Friday."

For this reason, statistics for specific Virginia cities will no longer be included in these reports.

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